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Pennsylvania National Resources Inventory

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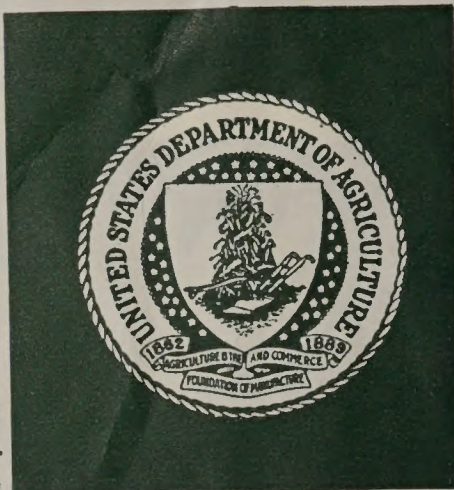


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The USDA Soil Conservation Service (SCS) in Pennsylvania participated in a National Resources Inventory. The inventory was initiated by Congress under the Resource Conservation Act of 1977. The Act is designed to provide for the appraisal of the Nation's soil, water, and related resources. The National Resources Inventory will be continuously updated at five-year intervals.

The inventory will provide direction for SCS's current conservation programs and assist in the development of future programs. This information will also be useful to governmental agencies, planners, and individuals interested in land use planning.

Graham T. Munkittrick

GRAHAM T. MUNKITTRICK
STATE CONSERVATIONIST

National Resources Inventory

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CATALOGING = PREP.

The National Resources Inventory (NRI) Study was designed to provide accurate natural resource data at the national, state, and regional level. It was planned by the U. S. Department of Agriculture, Soil Conservation Service, in cooperation with the Iowa State University Statistical Laboratories in Ames, Iowa.

About 1,400 sample land units covering approximately one percent of the land across the State were randomly selected for the study. Each sample unit consisted of 100 acres. Data was collected from each site by SCS technicians. The onsite field data was collected, checked, and rechecked at three chosen points within each sample unit.

The NRI Study in Pennsylvania provides natural resources data by soil capability class and subclass on (1) land use, (2) conservation treatment status and needs, (3) prime farmlands, (4) potential cropland, (5) sheet and rill erosion, and (6) type 3 - 20 wetlands.

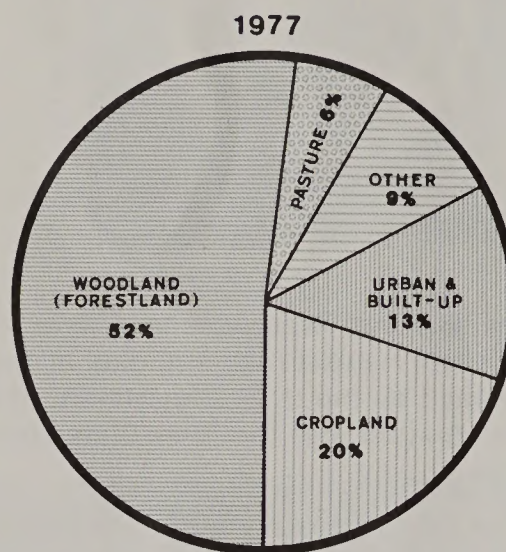
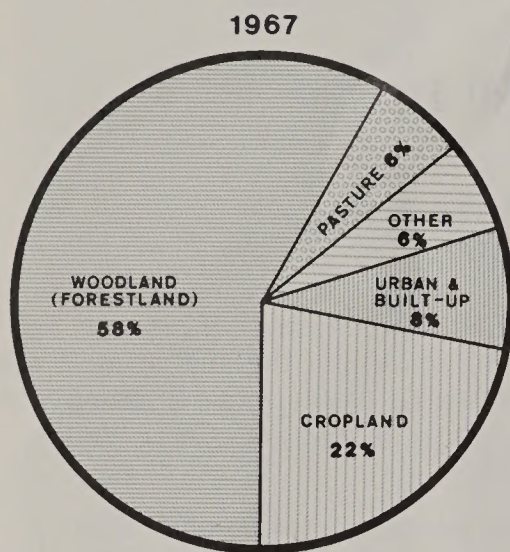
Where possible in this report, the 1977 NRI data is compared to the figures from the 1967 Pennsylvania Conservation Needs Inventory (CNI). This comparison permits an analysis of progress. Since the 1977 NRI is more detailed, in some cases similar data was not collected in 1967 and comparisons cannot be made.

To aid in the analysis, data is presented in both tabular and chart form. Summary statements are made to clarify status or trends.



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE

LAND USE IN PENNSYLVANIA



If the land change rates found in this study from 1967 to 1977 continue to the year 2,000, a total of 1,205,200 acres of cropland would be lost. This would reduce cropland in the State to about 4.5 million acres.

Over 52,000 acres of cropland are lost annually to urban and other land uses.

Pastureland increased by 25,000 acres in the 10-year period. Woodland loss is 173,400 acres annually to urban and other land uses. Urban and built-up land increased by 1.25 million acres from 1967 to 1977.

Other land, including idle land, increased by almost one million acres in the 10 years.

1977 NRI & 1967 CNI

INVENTORY	CROPLAND 000's	PASTURELAND 000's	WOODLAND (FOREST) 000's	URBAN & BUILT-UP 000's	OTHER 000's	TOTAL 000's
1967	6,185 (22%)	1,772 (6%)	16,083 (58%)	2,376 (8%)	1,686 (6%)	28,102 (100%)
1977	5,661 (20%)	1,797 (6%)	14,349 (52%)	3,635 (13%)	2,661 (9%)	28,103 (100%)
Change from 1967 (+ or -)	-524	+25	-1,734	+1,259	+975	+1

NOTES:

(1) Figures on charts do not include Federal land and water acreage.

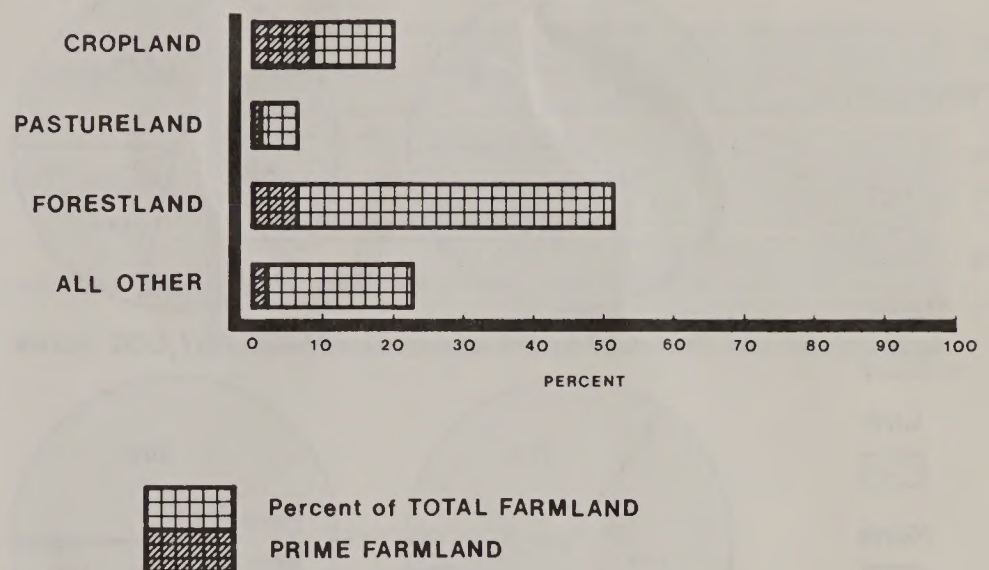
(2) Other land includes farmsteads, farm roads, ditch banks, rural nonfarm residences, investment tracts, strip mines, borrow and gravel pits and idle, open, rural nonfarmland.

PRIME FARMLAND

There are 4.4 million acres of prime farmland in the State. Of the 28.1 million acres of non-Federal land, 16 percent is prime farmland.

Over 40 percent of today's cropland is prime farmland.

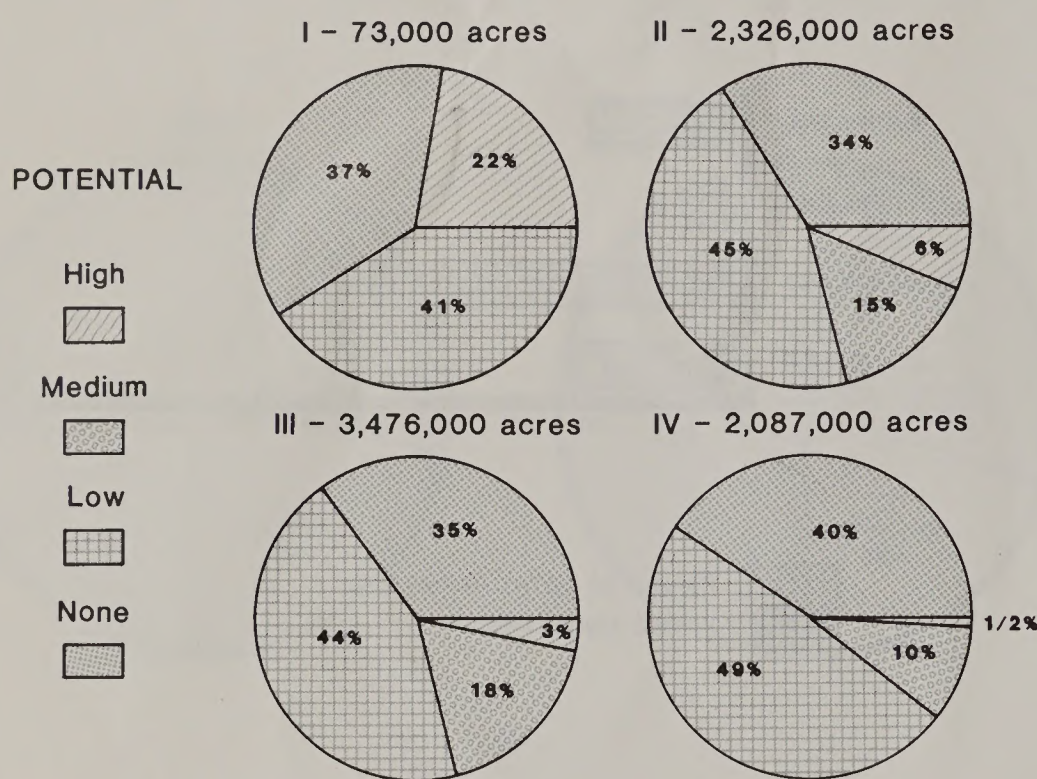
Fifteen percent of the present pastureland is prime farmland.



LAND USE	TOTAL ACRES	PRIME FARMLAND	% PRIME FARMLAND
CROPLAND	5,661,000	2,351,000 (53%)	42
PASTURELAND	1,797,000	269,000 (6%)	15
WOODLAND	14,349,000	1,518,000 (34%)	11
ALL OTHER (URBAN, BUILT-UP AND OTHER)	6,296,000	310,000 (7%)	5
PENNSYLVANIA TOTAL	28,103,000	4,448,000 (100%)	16 (average)

NOTE: From 1977 NRI. No data on prime farmland in 1967 Pennsylvania CNI.

LAND IN PASTURE, WOODS & OTHER USES WITH POTENTIAL FOR CONVERSION TO CROPLAND BY SELECTED CAPABILITY CLASS



About 50 percent of the State's prime farmland is in pasture, woodland, urban, built-up, etc., but only 3.35 percent of these lands have a high potential for conversion to cropland. This means almost one-half of the prime farmland is not readily available for use as cropland.

About 90 percent of the land with a high potential for conversion is in Capability Classes II and III.

Only 1.5 million acres of noncropland now used for pasture, woods, etc. have a medium to high potential for conversion to cropland.

Another 6.5 million acres of noncropland have little or no potential for conversion.

CLASS	HIGH	MEDIUM	LOW	NONE	TOTAL
I	16,000	—	30,000	27,000	73,000 (.92%)
II	135,000	350,000	1,045,000	796,000	2,326,000 (29.21%)
III	105,000	620,000	1,534,000	1,217,000	3,476,000 (43.66%)
IV	11,000	218,000	1,017,000	841,000	2,087,000 (26.21%)
Total	267,000 (3.35%)	1,188,000 (14.92%)	3,626,000 (45.55%)	2,881,000 (36.18%)	7,962,000 (100%)

NOTE: Figures shown are in acres.

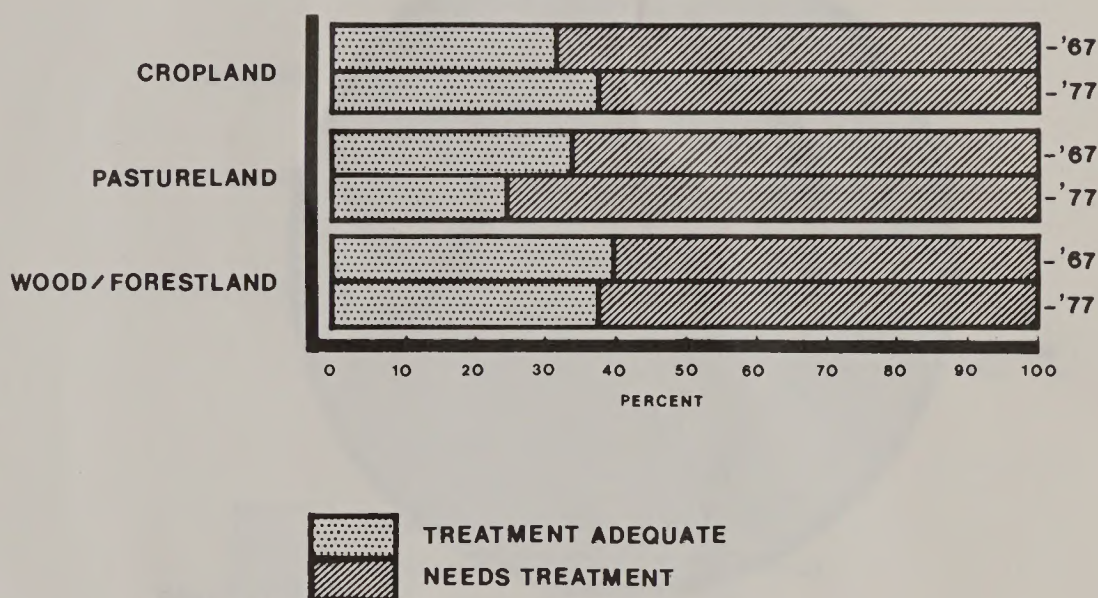
STATUS OF CONSERVATION TREATMENT

Some progress on land treatment to control erosion can be reported in Pennsylvania. Thirty-eight percent of the cropland was adequately treated in 1977 compared to 33 percent in 1967. However, the acreage of pasture and woodland adequately treated decreased during the same period.

Over 60 percent of the 5.7 million acres of cropland needs treatment.

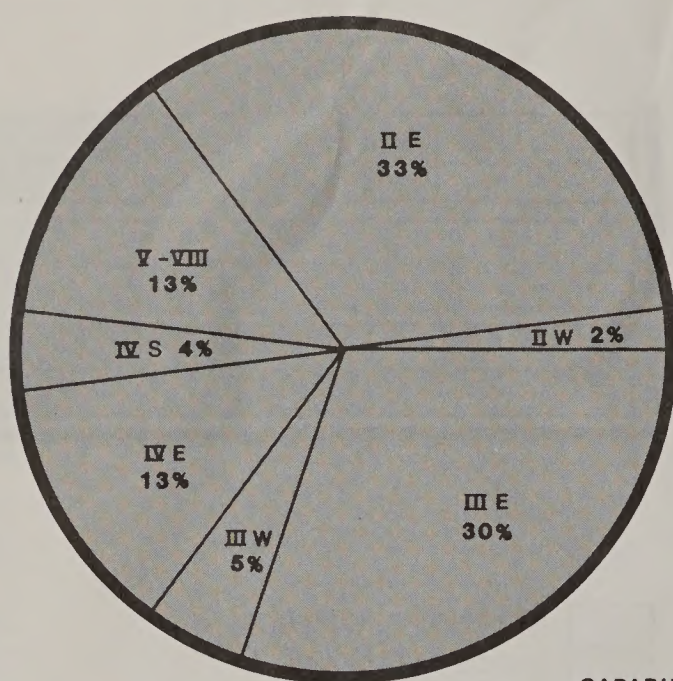
About 75 percent of the 1.7 million acres of pastureland needs treatment.

Of the 14.3 million acres of woodland, 62 percent needs conservation treatment.



	CROPLAND (ACRES)		OTHER LAND (ACRES)	
	1967	1977	1967*	1977
TREATMENT ADEQUATE	2,006,000 (32%)	2,136,000 (38%)		1,322,000 (62%)
NEEDS TREATMENT	4,176,000 (68%)	3,525,000 (62%)		819,000 (38%)
TOTALS	6,185,000	5,661,000		2,141,000
	PASTURELAND (ACRES)		SUMMARY - ALL LAND (ACRES)	
	1967	1977	1967*	1977
TREATMENT ADEQUATE	604,000 (34%)	449,000 (25%)		9,411,000 (39%)
NEEDS TREATMENT	1,168,000 (66%)	1,348,000 (75%)		14,537,000 (61%)
TOTALS	1,772,000	1,797,000		23,948,000
	WOODLAND (ACRES)		NOTES:	
	1967	1977		
TREATMENT ADEQUATE	6,429,000 (40%)	5,504,000 (38%)	1967 data from Pennsylvania CNI;	
NEEDS TREATMENT	9,654,000 (60%)	8,845,000 (62%)	1977 data from Pennsylvania NRI.	
TOTALS	16,083,000	14,349,000	*No inventory data.	

ESTIMATED ANNUAL AND TOTAL SHEET & RILL EROSION ON CROPLAND BY SELECTED CAPABILITY CLASS



CAPABILITY CLASS

E - Erosion
W - Wetness
S - Stoniness

Total soil loss on all cropland is estimated to be 31.2 million tons per year with an average rate of 5.5 tons per acre. Maximum allowable soil loss on a typical Pennsylvania soil ranges from three to four tons per year.

Over 70 percent of the sheet and rill erosion on cropland occurs on Capability Classes II and III land.

More severe erosion happens on Soil Capability Classes and Subclasses II E, III E, IV E, and IV S. Soil loss rates vary from 5.51 to 10.86 tons per acre.

CAPABILITY UNIT	ACRES	1977 NRI	
		TONS/ACRE/YEAR	TOTAL TONS/YEAR
II E*	1,887,000	5.51	10,397,000 (33%)
II W	309,000	2.22	685,000 (2%)
III E	1,528,000	6.21	9,486,000 (30%)
III W	543,000	3.01	1,635,000 (5%)
IV E	543,000	7.65	4,156,000 (13%)
IV S	104,000	10.86	1,129,000 (4%)
SUBTOTAL	4,914,000	5.91	27,488,000 (87%)
ALL OTHER	747,000	4.95	3,702,000 (13%)
GRAND TOTAL	5,661,000	5.51	31,190,000 (100%)

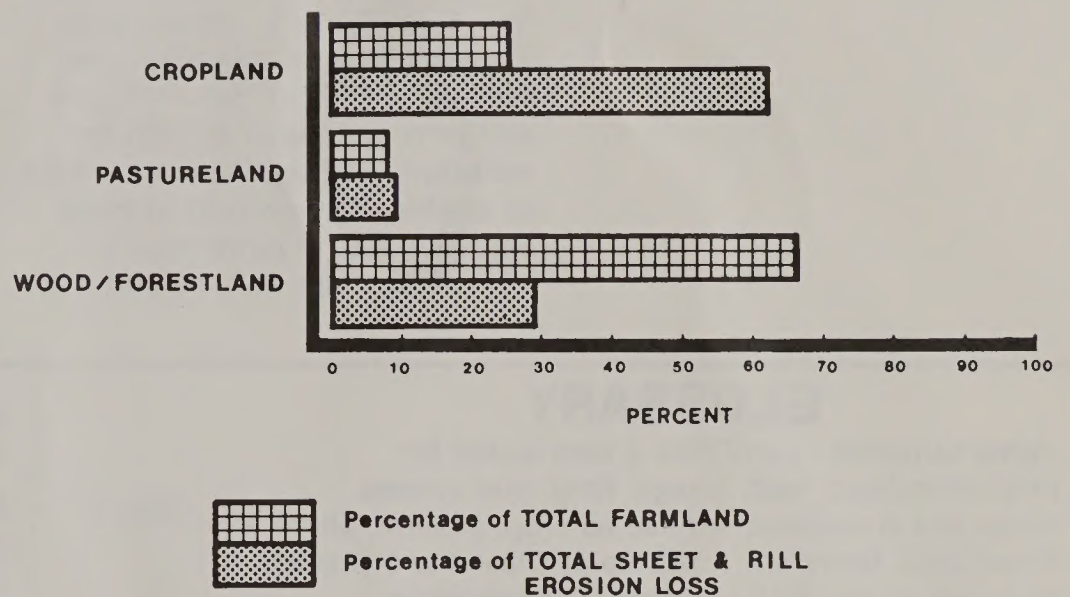
*E - EROSION
W - WETNESS
S - STONINESS

FARMLAND SHEET & RILL EROSION SUMMARY

Cropland is only one-third of the acreage total but is the source of two-thirds of the soil loss.

Total sheet and rill erosion from farmland and woodland in Pennsylvania is estimated at 50,717,000 tons each year.

Of the over 50 million tons of soil loss, 31.2 million tons are from cropland, 14.8 million tons from woodland, and 4.8 million tons from pastureland.



	ACRES	TONS/ACRE	TOTAL SHEET & RILL EROSION LOSS/YEAR
ALL CROPLAND	5,661,000	5.51	31,190,000 (62%)
PASTURELAND	1,797,000	2.65	4,770,000 (9%)
WOODLAND	<u>14,349,000</u>	<u>1.03</u>	<u>14,757,000 (29%)</u>
TOTALS	21,807,000	2.33	50,717,000 (100%)

WETLANDS

There are approximately 147,000 acres of types 3 - 20 wetlands in the State. Types 3 - 20 wetlands are covered with standing water for a major part or all of the year and provide food and cover for waterfowl and significant numbers of wildlife. Five percent of these wetlands was in farm crops in 1977. The major part, 50 percent,

was in woodland. Another 35 percent of the types 3 - 20 wetlands was in other uses, such as wildlife and recreation.

GLOSSARY

Prime farmland - Land that is best suited for producing food, feed, forage, fiber, and oilseed crops and is available for use as crop, pasture, and forest land. Generally made up of Class I and II soil as based on the SCS Land Use Classification.

Rill Erosion - An erosion process in which numerous small channels only several inches deep are formed; occurs mainly on recently cultivated soils.

Sheet Erosion - The removal of a fairly uniform layer of soil from the land surface by runoff water.

Soil Capability Class - One of the eight classes of land in the capability classification of the Soil Conservation Service; distinguished according to the risk of land damage or the difficulty of land use. They include:

- Class I - Soils that have few limitations restricting their use.
- Class II - Soils that have some limitations, reducing the choice of plants or requiring moderate conservation practices.
- Class III - Soils that have severe limitations that reduce choice of plants or require special conservation practices or both.
- Class IV - Soils that have very severe limitations that restrict the choice of plants,

require very careful management or both.

Class V - Soils that have little or no erosion hazard but have other limitations, impractical to remove, that limit their use to pasture, woodland, or wildlife food and cover.

Class VI - Soils that have severe limitations that make them generally unsuited to cultivation and limit their use largely to grazing, woodland, or wildlife.

Class VII - Soils that have very severe limitations that make them unsuited to cultivation and that restrict their use largely to grazing, woodland, or wildlife.

Class VIII - Soils and land forms that preclude their use for commercial plant production and restrict their use to recreation, wildlife, water supply, or aesthetic purposes.

Soil Capability Subclass - Groups of capability units within classes of the soil capability classification that have the same kinds of dominant limitations for agricultural use as a result of soil and climate. The four kinds of limitations recognized at the subclass level are: risk of erosion with symbol (E); wetness, drainage or overflow with (W); other root zone limitations with (S); and climatic limitations with (C).



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